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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,283

09/26/2006

Joaquin Espuelas Penalva

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DOWELL & DOWELL P.C.

103 Oronoco St.

Suite 220

Alexandria, VA 22314

EXAMINER

CHOI, PETER Y

ART UNIT

PAPER NUMBER

1786

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,283	<b>Applicant(s)</b> PENALVA, JOAQUIN ESPUELAS	
	<b>Examiner</b> Peter Y. Choi	<b>Art Unit</b> 1786	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 5) ☒ Claim(s) 56,57,62-65 and 67-77 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 56,57,62-65 and 67-77 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 5, 2011, has been entered.

### ***Specification***

2. Applicant's amendment to the specification of July 5, 2011, is noted and entered.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 56, 57, 62-65, 67-70, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,514,306 to Rohrbach in view of USPN 6,197,072 to Li.

Regarding claims 56, 57, 67, 70, and 75, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into the body and core

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of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a mixture of non-woven fabrics (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of Rohrbach appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Rohrbach does not appear to teach that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers store the anti-bacterial compound inside the treated fibers to eliminate Legionella Pneumophila without releasing the anti-bacterial compound, that the filter is further defined as being constructed of at least two layers of nonwoven fabrics so as to form a sandwich of layers, and that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C.

**Regarding the claimed composition of the fiber and the anti-bacterial compound,** Rohrbach teaches that the anti-microbial agent is preferably impregnated into, disposed within, or contained within at least a portion of the container member (Rohrbach, column 4 lines 7-15). Additionally, Li teaches esterified triclosan derivatives as improved textile antimicrobial agents, comprising the diffusion of triclosan esters within each individual fiber of a textile (Li, Abstract). Li teaches that the fibers are imparted with durable and long-lasting germicidal, fungicidal and antimicrobial properties to fabrics (Id., column 2 lines 36-50). Li teaches that the textile substrate may be nonwoven, and include cotton, polyester, polyamide, acetate, and polyolefin fibers (Id., column 3 lines 29-39). Li teaches that the use of triclosan esters merely provides an

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effective manner of applying and diffusing triclosan itself within a fabric substrate (Id., column 4 lines 4-49). Li teaches that the treated fabric may be incorporated into any fabric in which antimicrobial properties are desirous (Id., column 5 lines 51-54). Li teaches that the fabric is durable, wherein the antimicrobial triclosan derivative is difficult to remove and not susceptible to antimicrobial degradation upon contact and reaction with bleaches (Id., column 1 line 55 to column 2 line 33). Li teaches that the triclosan is diffused within the fibers of a fabric are not in contact with a washing liquid and cannot be easily removed (Id., column 4 line 66 to column 5 line 32). Additionally, as shown in at least Examples 1 and 2, the same results for contact inhibition and zone of inhibition were obtained after 0 washes and after 25 washes. Therefore, it is reasonable for one of ordinary skill in the art to expect that the triclosan is stored inside the treated fibers and that the anti-bacterial compound provides anti-bacterial properties without releasing the anti-bacterial compound.

Although Li teaches that triclosan ester is easily dissolved in water at high pH, it is reasonable for one of ordinary skill in the art to expect that the use of triclosan is suitable where the fabric is not laundered and exposed to a high pH detergent solution. Therefore, it would have been obvious to one of ordinary skill in the anti-bacterial fiber art at the time the invention was made to form the filter of Rohrbach, wherein the fibers comprise triclosan which is diffused within each individual fiber, as taught by Li, motivated by the desire of forming a conventional filter comprising anti-bacterial fibers known in the art as being predictably suitable where anti-bacterial properties are desirous, as the fibers are imparted with durable and long-lasting germicidal, fungicidal and antimicrobial properties to fabrics.

**Regarding the claimed configuration of the layers,** Rohrbach teaches that the filter includes one or more layers of a fibrous media that accomplishes the actual filtration (Id., column 3 lines 48-55). Although Rohrbach does not appear to specifically teach that the filter is further defined as being constructed of at least two layers of nonwoven fabrics so as to form a sandwich of layers, it naturally flows from the teachings of Rohrbach that forming the filter having multiple layers, such as more than one layer, three or four or five layers, increases the thickness, strength and rigidity of the filter, in addition to increasing the filter and/or barrier properties of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art combination, wherein the filter comprises three or four or five nonwoven layers, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

Alternatively, it should be noted that since Rohrbach teaches that the filter may comprise one or more layers of fibrous media, in addition to a support member, it would have additionally been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art combination, comprising multiple layers of identical and/or substantially similar nonwoven mats, motivated by the desire of forming a conventional filter having additional support layers to predictably increase the weight, thickness and dimensional stability of the resulting filter, based on the intended application.

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**Regarding the claimed property**, although the prior art combination does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the claimed anti-bacterial properties naturally flow from the treated fibers of the prior art combination, since the prior art combination teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition and the claimed biocide integrated into the body and core of the fiber) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art combination, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

**Regarding the preamble**, the prior art combination does not appear to specifically teach that the filter is used for filtration and elimination of *Legionella Pneumophila* in any installation at risk from *Legionella Pneumophila* proliferation and that the filter eliminates *Legionella Pneumophila*. However, a preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). A recitation of the intended use of the claimed invention

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must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art combination teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN<sup>TM</sup> anti-bacterial composition and the claimed biocide integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art combination appears to be capable of performing the claimed intended use.

Regarding claims 62-65, Rohrbach teaches that the fiber is a synthetic polymer chemical fiber (Rohrbach, column 5 line 1 to line 55). Polyolefins commonly known in the art include polyethylene and polypropylene. Additionally, Rohrbach expressly incorporates by reference USPN 5,057,368 to Largman as teaching a fiber suitable to practice the invention of Rohrbach. Largman teaches at column 7 line 64 to column 10 line 40 that the fiber may comprise a polyolefin such as polypropylene and that the fibers are suitable for use in filters. Therefore, Rohrbach appears to teach the claimed polypropylene fiber.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art combination, wherein the fibers are polypropylene fibers, as the prior art teaches that the polypropylene fibers of Largman are suitable to practice the invention of the prior art, and as it is within the level of ordinary skill to choose a suitable commercially available polyolefin such as polypropylene, based on the desired characteristics of the fiber, such as strength and formability.

Regarding claim 68, Rohrbach teaches that the sandwich further includes a non-woven fabric support (Rohrbach, column 3 lines 40-46). Additionally, it naturally flows from the



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teachings of Rohrbach that forming the filter having multiple layers, such as three or four or five layers, increases the thickness, strength and rigidity of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of Rohrbach, further including a nonwoven fabric support layer, as Rohrbach suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

Regarding claim 69, Rohrbach teaches that the fibers are approximately 30 microns in diameter, may have a cross-section such as circular, hollow, multiple lobal, trilobal or similar, an elongated length or a filament (Rohrbach, column 5 line 1 to column 6 line 4). It should be noted that Rohrbach expressly incorporates by reference USPN 5,057,368 to Largman as teaching fibers within the scope of the prior art invention, wherein Largman teaches the use of filaments, which are known in the art as comprising continuous and/or indefinite length.

Additionally, it should be noted that a color from translucent white to black and any combinations thereof, reasonably constitutes all color ranges for fibers and/or filaments, and it is reasonable for one of ordinary skill to expect that the fiber necessarily comprises a color within the claimed range. Alternatively, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of Rohrbach, and determining a suitable color for the fiber, as it is within the level of ordinary skill to determine a suitable fiber color based on the desired aesthetics of the resulting filter.

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Additionally, although the prior art combination does not appear to specifically disclose a fiber weight in the range of from 5 to 2,500 grams, it is reasonable for one of ordinary skill in the art to expect that fiber weight is based on the composition of the fiber in addition to the diameter and length of the fiber. Additionally, forming a filter with a longer and larger diameter fiber would reasonably result in a stronger, less flexible, thicker, and heavier fiber and resulting filter. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of Rohrbach, and further adjusting the weight of the fiber within the claimed ranges, motivated by the desire of forming a conventional filter having the desired strength, flexibility, dimensional stability, and weight suitable for the intended application.

Additionally, although the prior art combination does not appear to disclose the claimed fusion point in the range of from 60° C to 450° C, the prior art combination teaches identical and/or substantially similar fibers as the fibers disclosed in Applicant's specification pages 29-33. Therefore, it is reasonable for one of ordinary skill in the art to expect that the claimed property naturally flows from the structure in the prior art combination, since the prior art combination teaches an invention with a substantially similar structure and chemical composition as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

5. Claims 71-74, 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach in view of Li, as applied to claims 56, 57, 62-65, 67-70, and 75 above, and further in

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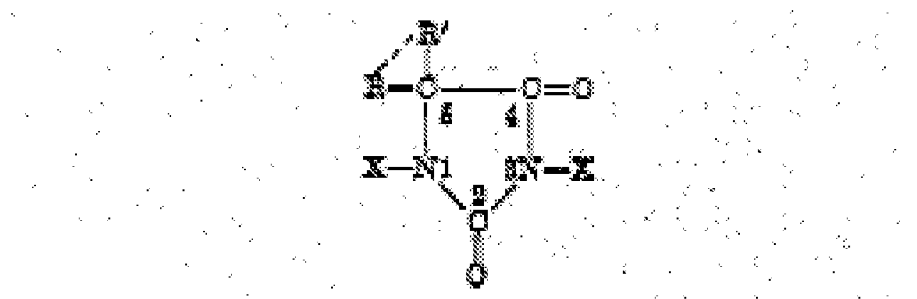
view of US Pub. No. 2003/0031687 to Falder, USPN 2,920,997 to Wolf and USPN 5,603,941 to Farina.

**Regarding the claimed biocide**, Rohrbach suggests various embodiments additionally comprising multiple anti-microbials, as Rohrbach recites that the filter comprises at least one anti-microbial agent in combination (Rohrbach, column 3 line 63 to column 4 line 6). Additionally, Rohrbach suggests that anti-microbial agents include any substance or combination of substances capable of either preventing, slowing or stopping the growth and/or proliferation of any type of microbial population, such as, but not limited to bacteria, fungi and the like.

Falder additionally teaches anti-microbials which may be used in filters (Falder, paragraphs 0001-0032, 0045-0087, 0090-0101, 0250-0285, Tables 13-15). Falder acknowledges that microbial colonies replicate rapidly to form colonies, forming biofilms on any substrate surface exposed to bacteria and some amount of water (Id., paragraphs 0002 and 0003). Falder discloses that biofilms are more hazardous to health than individual microorganisms (Id.) and that biofilms can be formed by a single bacterial species, or several species of bacteria and fungi (Id.). Falder discloses and suggests that anti-microbial agents vary in their effectiveness as they are only effective against certain microorganisms (Id., paragraph 0025), which entails that their use is limited as they are not effective against all types of microorganisms (Id.).

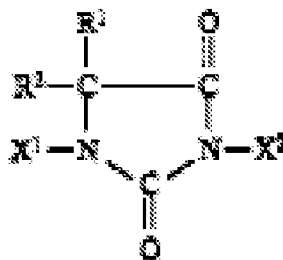
Wolf teaches a class of fungicides comprising 1,3-dihalohydantoin (Wolf, column 1 line 16 to column 4 line 26). Wolf teaches that the fungicidal compositions comprise hydantoins of the formula:

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Wherein X is a halogen such as chlorine or bromine and R and R' may comprise alkyl groups such as methyl groups (Id., column 1 line 22 to column 3 line 16). Wolf teaches that the fungicide can be applied to surfaces of cloths, textiles and woven fibers, wherein the fungicide is interspersed between the fine structure of the materials and is in intimate contact with the materials (Id., column 3 lines 17-74).

Additionally, Farina similarly discloses a composition comprising dihalogenated hydantoin which is used to remove or inhibit the formation of biofilms (Farina, column 1 line 7 to column 4 line 27). Farina teaches that the composition uses biocides to enhance overall biocidal control, as biocides prevent the growth of, inhibit the growth of, or kill microorganisms (Id., column 1 line 55 to column 2 line 29). Farina teaches that dibromohydantoin, dichlorohydantoin, or bromochlorohydantoin are most preferred having the formula:



Wherein R<sup>1</sup> and R<sup>2</sup> are independently methyl or ethyl and X<sup>1</sup> and X<sup>2</sup> are independently chlorine or bromine, such as bromochloro-5,5-dimethylhydantoin (Id., column 2 line 30-48). Farina teaches that any substrate susceptible to the formation of biofilms and/or growth of

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microorganisms is suitable for treatment with the aforementioned compositions (Id., column 4 lines 11-24).

Based on the totality of the teachings of the prior art, it would have been obvious to one of ordinary skill in the anti-bacterial fabric art at the time the invention was made to form the anti-bacterial fabric of Rohrbach, wherein the anti-bacterial fabric additionally comprises a biocide such as bromochloro-5,5-dimethylhydantoin, as taught by the Wolf and Farina, as Falder discloses that biofilms are known to form on filters and that multiple anti-bacterial and/or anti-fungal compositions may be necessary to inhibit the growth of various microorganisms, and motivated by the desire of forming a conventional anti-bacterial fabric with additional fungicidal characteristics to inhibit the predictable growth of biofilms on the fabric, as the resulting anti-bacterial fabric would predictably comprise the combined advantageous and beneficial characteristics of anti-bacterial and anti-fungal properties.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 56, 57, 62-65, and 67-77 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the supplemental comments of the Inventor, it should be noted that the current rejection is based on Rohrbach in view of Li, wherein Li teaches the benefits of diffusing an anti-microbial within the structure of a polyolefin fiber, while maintaining anti-microbial benefits. Additionally, although Inventor recites that Rohrbach does not claim utility against *Legionella*, it should be noted that the TRICLOSAN™ of Rohrbach appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24). The claiming of a

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new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. Since the anti-bacterial of the prior art combination is substantially similar or identical to the anti-bacterial recited in Applicant's specification, it is reasonable for one of ordinary skill in the art to expect that the claimed utility against *Legionella* is inherent to or naturally flows from the anti-bacterial fiber set forth in the prior art combination.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Chriss can be reached on (571) 272-7783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter Y Choi/  
Primary Examiner, Art Unit 1786